

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

# PCT

To:

FISH & RICHARDSON P.C.  
Attn. Thompson, Dwight U.  
P.O. Box 1022  
Minneapolis MN 55440-1022  
UNITED STATES OF AMERICA

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL SEARCH REPORT AND  
THE WRITTEN OPINION OF THE INTERNATIONAL  
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

<p>Date of mailing (day/month/year) <span style="float: right;">31/05/2006</span></p>	
<p>Applicant's or agent's file reference 09991-170W01</p>	<p><b>FOR FURTHER ACTION</b>      See paragraphs 1 and 4 below</p>
<p>International application No. PCT/US2005/036935</p>	<p>International filing date (day/month/year) <span style="float: right;">12/10/2005</span></p>
<p>Applicant  DIMATIX, INC.</p>	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

**When?** The time limit for filing such amendments is normally two months from the date of transmittal of the International Search Report.

**Where?** Directly to the International Bureau of WIPO, 34 chemin des Colombettes  
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 338.82.70

**For more detailed instructions,** see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

**4. Reminders**

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

<p>Name and mailing address of the International Searching Authority</p> <div style="display: flex; align-items: center;"> <div> <p>European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016</p> </div> </div>	<p>Authorized officer</p> <p style="text-align: center; font-size: 1.2em;">Marja Brouwers</p>
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## NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the *PCT Applicant's Guide*, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

### INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report and the written opinion of the International Searching Authority, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only (see *PCT Applicant's Guide*, Volume I/A, Annexes B1 and B2).

The attention of the applicant is drawn to the fact that amendments to the claims under Article 19 are not allowed where the International Searching Authority has declared, under Article 17(2), that no international search report would be established (see *PCT Applicant's Guide*, Volume I/A, paragraph 296).

#### What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

#### When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

#### Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

#### How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Section 205(b)).

**The amendments must be made in the language in which the international application is to be published.**

#### What documents must/may accompany the amendments?

##### Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

**The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.**

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 09991-170W01	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2005/036935	International filing date (day/month/year) 12/10/2005	(Earliest) Priority Date (day/month/year) 15/10/2004
Applicant  DIMATIX, INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed  
☐ a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (see Box No. III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant  
☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant  
☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 12  
☒ as suggested by the applicant  
☐ as selected by this Authority, because the applicant failed to suggest a figure  
☐ as selected by this Authority, because this figure better characterizes the invention  
 b. ☐ none of the figures is to be published with the abstract

## INTERNATIONAL SEARCH REPORT

International application No

PCT/US2005/036935

## A. CLASSIFICATION OF SUBJECT MATTER

INV. G06F3/12 G06K15/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G06F G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 452 313 A (OLYMPUS CORPORATION) 1 September 2004 (2004-09-01) paragraphs [0006], [0027] - [0032] figures 1,2	1-21
A	----- US 6 295 077 B1 (SUZUKI KAZUYOSHI) 25 September 2001 (2001-09-25) column 6, lines 15-56 figure 4	1,12,18
A	----- WO 01/12444 A (CHAMPION IMAGING SYSTEMS PTY LTD; MUSUMECI, PHILLIP) 22 February 2001 (2001-02-22) page 2, columns 7-19 figure 1	1,12,18



Further documents are listed in the continuation of Box C.



See patent family annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- \* & \* document member of the same patent family

Date of the actual completion of the international search

24 May 2006

Date of mailing of the international search report

31/05/2006

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.  
Fax: (+31-70) 340-3016

Authorized officer

De Ceulaer, B

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2005/036935

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1452313	A	01-09-2004	WO 03047867 A1	12-06-2003
			JP 2003165263 A	10-06-2003
			US 2004218200 A1	04-11-2004
US 6295077	B1	25-09-2001	JP 3667001 B2	06-07-2005
			JP 10084468 A	31-03-1998
WO 0112444	A	22-02-2001	CN 1376116 A	23-10-2002
			EP 1212201 A1	12-06-2002
			JP 2004516162 T	03-06-2004
			NZ 517389 A	26-09-2003

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

# PCT

see form PCT/ISA/220

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing  
(day month year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No  
PCT/US2005/036935

International filing date (day month year)  
12.10.2005

Priority date (day month year)  
15.10.2004

International Patent Classification (IPC) or both national classification and IPC  
INV. G06F3/12 G06K15/02

Applicant  
DIMATIX, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

### 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA



European Patent Office - P.B. 5818 Patentlaan 2  
NL-2280 HV Rijswijk - Pays Bas  
Tel. +31 70 340 - 2040 Tx. 31 651 epo nl  
Fax: +31 70 340 - 3016

Date of completion of  
this opinion

see form  
PCT/ISA/210

Authorized Officer

De Ceulaer, B

Telephone No +31 70 340-4229



**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US2005/036935

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of:
  - ☒ the international application in the language in which it was filed
  - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ on paper
    - ☐ in electronic form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in electronic form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/US2005/036935

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. *Statement*

Novelty (N)	Yes: Claims	1-11,17-21
	No: Claims	12-16
Inventive step (IS)	Yes: Claims	
	No: Claims	1-21
Industrial applicability (IA)	Yes: Claims	1-21
	No: Claims	

2. Citations and explanations

**see separate sheet**



**Re Item V**

**1. PRIOR ART**

**1.1. Reference is made to the following document:**

D1: EP-A-1 452 313 (OLYMPUS CORPORATION) 1 September 2004 (2004-09-01)

D2: US-B1-6 295 077 (SUZUKI KAZUYOSHI) 25 September 2001 (2001-09-25)

**2. INDEPENDENT CLAIMS**

2.1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 does not involve an inventive step in the sense of Article 33(3) PCT.

Document D1 discloses (the references in parentheses applying to this document): a device for assembling image data into a packet to send to a print head assembly (par. [0027] - [0029]: image data is assembled in memory 101 of fig. 1 and sent to print heads 203, 204 in fig. 2), the device comprising an array of state machines, wherein each state machine corresponds to a logical image queue (par. [0027], [0028]: the divided image memories 104, 105 are logical image queues; the transfer of image data to the recording heads 106, 107 implies the existence of state machines in the system of D1), and wherein each state machine has a corresponding delay input that is configured to arrange the image data according to logical scan lines (the existence of some delay input is implied in the system of D1 as the image data in the divided image memories (par. [0027] - [0032]) is printed sequentially); and a communication interface configured to send the packet of image data to the print head assembly (par. [0027] - [0029]: the sending of the image data to the print head assembly implies the existence of a communication interface in D1).

The subject-matter of claim 1 therefore only differs from D1 in that claim 1 claims a serializer for serializing image data, whereas D1 does not mention such serializer.

Nonetheless, a serializer is a well-known component (e.g. D2, col. 6, ln. 15 - 56 and fig. 4)

which would be chosen by the skilled person as a direct consequence of an obvious choice of connection type (parallel or serial). Therefore the subject-matter of claim 1 does not involve an inventive step in the sense of Article 33(3) PCT.

2.2. The subject-matter of independent claim 18, which substantially corresponds to the subject-matter of claim 1, does not meet the criteria of Article 33(1) PCT, for the same reasons, *mutatis mutandis*, as stated in par. 2.1.

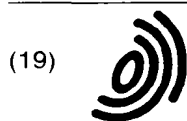
2.3. D1 discloses all the features of claim 12:

a method performed by a computer for controlling high bandwidth printing by a remote printer (par. [0027] - par. [0029]), the method comprising

- detecting a speed and a position of a workpiece relative to the remote printer (this implicitly happens in the system of D1 otherwise correct printing would be impossible);
  - assembling image data into an image data packet based on the detected speed and position of the workpiece (par. [0028]: the data is implicitly assembled before being stored in the image memories); and
  - transmitting the image data packet to the remote printer substantially at an instant at which an image is to be printed on the workpiece (par. [0027] - [0029]: image data is implicitly transmitted at an instant at which an image is to be printed on the workpiece).
- Therefore the subject-matter of this claim is not new in the sense of Article 33(2) PCT.

### 3. DEPENDENT CLAIMS

3.1. Dependent claims 2 - 11, 13 - 17 and 19 - 21 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT), see document D1 and the other documents and passages mentioned in the search report.



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11) **EP 1 452 313 A1**

(12)

**EUROPEAN PATENT APPLICATION**  
published in accordance with Art. 158(3) EPC

(43) Date of publication:  
01.09.2004 Bulletin 2004/36

(21) Application number: 02786020.4

(22) Date of filing: 03.12.2002

(51) Int Cl.7: **B41J 2/01**

(86) International application number:  
**PCT/JP2002/012639**

(87) International publication number:  
**WO 2003/047867 (12.06.2003 Gazette 2003/24)**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR  
IE IT LI LU MC NL PT SE SI SK TR**

(30) Priority: 03.12.2001 JP 2001368939

(71) Applicant: **Olympus Corporation**  
**Tokyo 151-0072 (JP)**

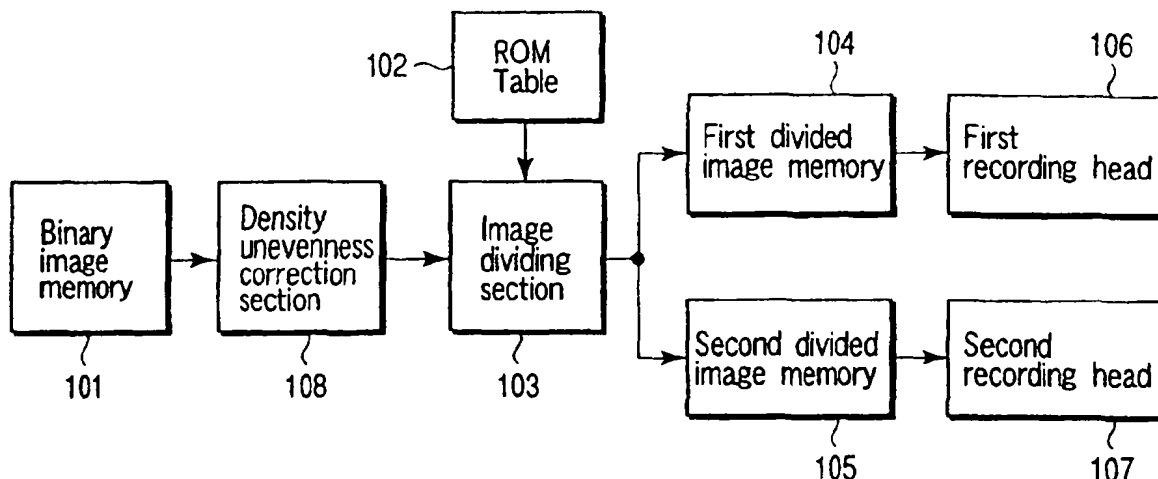
(72) Inventor: **EBIHARA, Toshiyuki**  
**Hino-shi, Tokyo 191-0011 (JP)**

(74) Representative: **von Hellfeld, Axel, Dr. Dipl.-Phys.**  
**Wuesthoff & Wuesthoff**  
**Patent- und Rechtsanwälte**  
**Schweigerstrasse 2**  
**81541 München (DE)**

(54) **IMAGE RECORDING APPARATUS**

(57) There is disclosed an image recording apparatus comprising a density unevenness correction section which corrects density unevenness of input image data, a dividing line shape data generation section which produces dividing line shape data to divide the image data subjected to density unevenness correction into a plurality of partial images, an image dividing section which

divides the image data into a plurality of partial images based on the dividing line shape data produced in the dividing line shape data generation section, and a recording section comprising a plurality of recording heads to record the respective partial images output from the image dividing section, so that it is possible to avoid image quality degradation by a conspicuous joint of the image.



**FIG. 1**

EP 1 452 313 A1



US006295077B1

(12) **United States Patent**  
**Suzuki**

(10) **Patent No.:** **US 6,295,077 B1**  
(45) **Date of Patent:** **Sep. 25, 2001**

(54) **IMAGE FORMING APPARATUS**

(75) **Inventor:** **Kazuyoshi Suzuki, Numazu (JP)**

(73) **Assignee:** **Canon Kabushiki Kaisha, Tokyo (JP)**

(71) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) **Appl. No.:** **08/917,862**

(22) **Filed:** **Aug. 27, 1997**

(30) **Foreign Application Priority Data**

Sep. 6, 1996 (JP) ..... 8-236389

(51) **Int. Cl.** ..... **B41J 2/47**

(52) **U.S. Cl.** ..... **347/237; 347 247**

(58) **Field of Search** ..... 347 237, 116, 347 247; 358 296, 300, 288, 267, 268

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

3,707,725 \* 12 1972 Dellhelm ..... 444 134

4,521,813 \* 6 1985 Yoshida et al. .... 358 296

4,807,047 \* 2 1989 Sato et al. .... 358 300

5,206,501 \* 4 1993 Sakakibara et al. .... 358 461

5,579,092 \* 11 1996 Isobe et al. .... 347 116

\* cited by examiner

**Primary Examiner**—N. Le

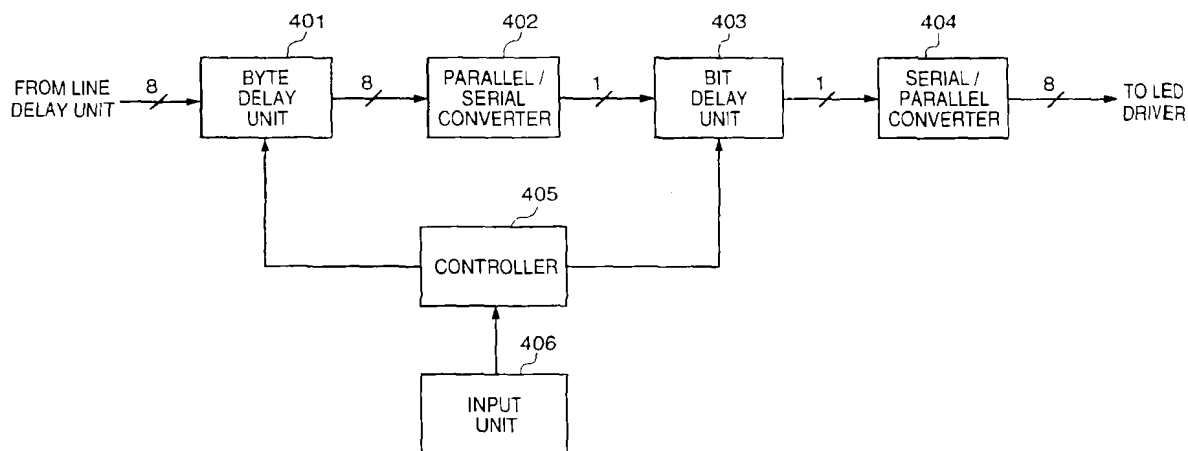
**Assistant Examiner**—Lamson D. Nguyen

(74) **Attorney, Agent, or Firm**—Fitzpatrick, Cella, Harper & Smith

(57) **ABSTRACT**

An image forming apparatus wherein data which enters in parallel a plurality of pixels at a time is converted to a serial image data string. This serial image data string is shifted by a predetermined number of pixels, the shifted serial image data string is output in parallel a plurality of pixels at a time, and an image is formed based upon the image data output in parallel a plurality of pixels at a time.

**23 Claims, 7 Drawing Sheets**



(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
22 February 2001 (22.02.2001)

PCT

(10) International Publication Number  
**WO 01/12444 A1**

(51) International Patent Classification: **B41J 29/40.**  
3/62, G06F 3/12

(21) International Application Number: PCT/AU00/00986

(22) International Filing Date: 18 August 2000 (18.08.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
PQ 2286 18 August 1999 (18.08.1999) AU

(71) Applicant (for all designated States except US): **CHAMPION IMAGING SYSTEMS PTY LTD** [AU/AU]; 416 Barry Road, Coolaroo, VIC 3048 (AU).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **MUSUMECI, Phillip** [AU/AU]; 416 Barry Road, Coolaroo, VIC 3048 (AU).

(74) Agent: **LESICAR PERRIN**; 168 South Terrace, Adelaide, S.A. 5000 (AU).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

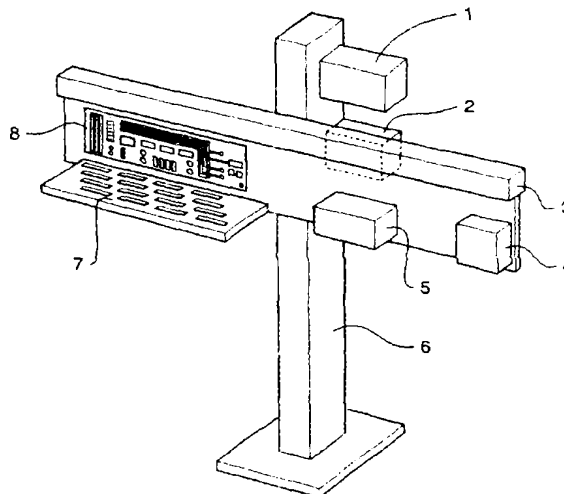
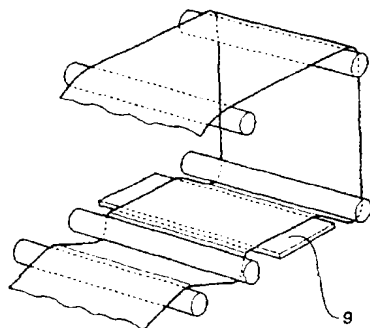
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **MULTI LAYER CONTINUOUS PAPER PRINTER**



(57) **Abstract:** A method of printing that enables simultaneous printing multiple paper streams with a combination of fixed and variable information is disclosed. The method is useful in combination with high-speed form collators handling multiple paper streams. The method uses a web based graphics editor program to develop page layout information incorporating fixed and variable image information using a web based graphics editor program. The page layout information is manipulated by an image processing computer, said image processing computer including a digital signal processing system adapted to analyse the page layout information into a pixel data corresponding to fixed and variable information to be printed and dividing the pixel data into a plurality of data packets. The data packets are delivered to a respective print head in a plurality of print head arrays. Each of the print head arrays is associated with a separate paper stream to thereby produce printing on multiple streams simultaneously.

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